COMPARISON AND CORRESPONDENCE: REVISITING AN OLD IDEA FOR THE PRESENT TIME

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ABSTRACT
Analogical thinking that relates everything to everything else in a complicated system of correspondences was common in ancient Mesopotamia, ancient Greece, early modern Europe, as well as ancient China. Such premodern theories of knowledge about correspondences between the cosmos and the human world are discredited in modern scientific thinking, but by revisiting some of the old ideas, of which the value has not been sufficiently recognized in modern scholarship, we may find them helpful in rethinking the disciplinary compartmentalization of knowledge and the possibilities of dialogues between different disciplines in comparative studies.

KEYWORDS: science as paradigm, truth, book of nature, analogical thinking, correspondence

In academic research and in a more general understanding of knowledge and truth, we live in a world of increasingly specialized areas of different disciplines that tend to compartmentalize our knowledge rather than to see the different parts and dimensions of our world as correlated as a whole. Despite the often accentuated idea of interdisciplinarity, different disciplines and areas of studies rarely talk to one another, and within each discipline, specialization leads to further technical elaboration and complexity, to ever narrower professionalism at the expense of raising larger questions of basic conceptualizations, and of broad, innovative, and challenging insights and perspectives. Another common phenomenon we find everywhere in the world today is the predominance of science and technology and the simultaneous marginalization of the humanities, the preeminence of what

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is scientifically true in a functional sense of practicality and application over what is aesthetically, ethically, or spiritually valuable and significant. And yet, all disciplines and areas of study share a fundamental methodological and epistemological given—namely comparison, which subtends all efforts at learning and knowledge. In rethinking the issue of the indiscipline of comparison, therefore, I would like to go beyond the conventional disciplinary boundaries and the big divide between sciences and the humanities to reveal the operation of comparison in various disciplines, and to suggest ways to reconnect different areas of human knowledge in a holistic manner without neglecting the important differences between disciplines and research approaches.

Scientific Paradigm and Its Discontents

Science provides the paradigm for truth in the modern world in the sense that people generally accept and believe whatever is presented as scientific to be true, even though in reality and generally speaking, most people have neither the expertise nor the equipment to verify for themselves science's truth-claims. If truth means what is verifiable, that is, correspondence or matching between what is claimed to be true and what is an empirically proven fact, condition, or situation, the concept of truth and its verification already involve comparison as basic methodology, but for most of modern science's truth-claims, only scientists with special knowledge and expertise are able to do the comparison and make the verification. "The currency of science is largely of unobservable entities such as electrons, black holes, DNA molecules, tectonic plates, and the like," as Peter Kosso observes. Moreover, science changes and develops continuously over time, and as a result, propositions that used to be taken as scientifically true may later turn out to be less true or even untrue, and replaced by newer paradigms or newer claims to truth. The history of science seems to be littered with outdated concepts, such as aether or phlogiston, which were discarded when new and more advanced concepts put them into the dustbin of wrong or old-fashioned ideas. Science and technology always favor the new and the present, and they embody the idea of progress in taking whatever is understood as most current in scientific research as truth. Kosso calls this "arrogance of the present," against which the real question to ask about scientific truth, he argues, is not its success, but its "methodological structure," that is, "What then is this structure, and what about it gives us reason to think it produces truths?"[1] As most people are

not capable of verifying scientific truth-claims for themselves, the structure that makes them accept such truth-claims is essentially a hermeneutic one, that is, a structure of explanation and persuasion. Kosso adopts "the model of reading a text" to understand the workings of science, and talks about natural science in analogy to "reading and interpreting a book, the book of nature."[2] That "model of reading a text," and in particular the historically rich metaphor of "the book of nature," brings the verification of scientific truth-claims to a hermeneutic process in which we see science as part of human knowledge as a whole, and look at its "methodological structure" as essentially a structure of logical reasoning and explanation.

In reading the book of nature, scientists make sense of natural phenomena in much the same way a translator or a reader makes sense of an unfamiliar text, moving constantly around in a hermeneutic circle from parts to the whole, and from the whole to the parts. Observations of particular natural phenomena are seen to be meaningful only when scientists interpret them within a larger theoretical context, in which observational details are shown to be relevant and significant. For example, a particle detector provides meaningful data "only if we know already that a click means that an electron has passed through," says Kosso:

> Theories, such as the one that describes the link between clicking meters and passing electrons, represent an understanding of general aspects of how the world works and will influence the interpretation of individual pieces of observational evidence. Thus the big picture guides the interpretation of the parts. And of course the theoretical understanding of the big picture is built from and tested against the individual, observational parts.[3]

Observational evidence makes sense in the larger context of the "big picture" as a whole, while the "big picture" emerges from collecting and integrating observational evidence as parts. The hermeneutic circle of understanding nature thus has the same structure as the philological circle of understanding a text in the correlation of individual words as parts and sentences and finally the text as a whole.

Seeing science as part of human knowledge as a whole makes science less mystifying and alienating, and helps our effort to rethink the formation of knowledge from a holistic point of view rather than in a compartmentalized isolation of different disciplines. It is also important to think of science's truth-claim as a proposition in a particular discipline, which becomes persuasive through explanation and interpretation. Making sense in science and

making sense in reading thus form a comparison, for which the conceptual metaphor of "the book of nature" effectively expresses the core idea of a hermeneutic activity in the acquisition of knowledge.

The "book of nature," as Ernst Robert Curtius points out, "derives from the Latin Middle Ages."[4] Curtius cites many important theologians, writers, and poets to show how this basic metaphor developed in history from the Middle Ages to the Renaissance, and then continuing to later times. From Alan of Lille, Hugh of Victor to Bernard Silvestris, John of Salisbury, and others, the metaphors of "liber naturae," "book of creatures," and "book of reason" appear frequently in various theological and philosophical texts. In the fourteenth century, the "book of nature" was "secularized" in Germany when Conrad of Megenberg (1309–1374) entitled his translation of *De naturis rerum* by Thomas of Cantimpré as *Buch der Natur*. Nicolas of Cusa adopted the metaphor and applied it to sensorial perceptions, taking "things of sense" to be "books" which reveal God's truth. Curtius then sums up his survey of the metaphor's early history and points out that the "book" metaphor "originated in pulpit eloquence, was then adopted by medieval mystic-philosophical speculation, and finally passed into common usage."[5] Before the seventeenth century, however, reading the book of nature was not a scientific project, but guided more by theology and religion than the discovery of nature's mysteries.

Umberto Eco also mentioned "the medieval tendency to understand the world in terms of symbol and allegory."[6] In such a medieval outlook, nothing is what it seems, but the world should be seen as a sign system couched in a hermetic language with meanings transcending the merely physical and phenomenal, to be deciphered through allegorical interpretations. "Things were signs," says Eco of this medieval view, "the world was God's discourse to man."[7] In that symbolic framework, as St. Hugh of Victor put it, "the earth was 'like a book written by the finger of God.'"[8] But the metaphoric book of nature is not just medieval, for it continues to figure prominently from the Renaissance to modern times. Curtius cites Montaigne, Descartes, Francis Bacon, Sir Thomas Browne, Diderot, Voltaire, Rousseau, all the way to Goethe and the German romantics, who all used the metaphorical book of nature. In the process, however, science as a modern way of reading the book of nature based on logic and empiric evidence gradually differentiates itself from the traditional way of understanding based on religion as God's truth. Galileo is especially important for giving the metaphor "a significant new turn," because he argued that the book of nature was written "in a mathematical language, and the characters are triangles, circles, and other geometrical figures."[9] With Galileo's understanding, the book of nature

became a metaphor for the object of scientific research, and mathematics provided the language with which natural philosophers read that majestic book. Thus reading the book of nature signals searching for truth in natural sciences.

The "book of nature" is indeed a "common image," says Ken Robinson, but since the seventeenth century, he argues, there have been two different books from two very different perspectives:

> On one view, which carries over from the Middle Ages to the Renaissance, the book is a remarkable tissue of correspondences or resemblances which require allegorical, mystical-religious reading; on the other, it is written in the language of mathematics, not in the language of Pythagorean and Neoplatonic number symbolism which Renaissance architects had spatialized to embody in their creations the pristine harmonies of the music of the spheres, but in the new mathematics which sharply divided qualities from quantities and saw its province as the latter.[10]

Here the distinction between the two views of the book of nature marks the separation of different disciplines of scientific research in the seventeenth century, also the distinction between scientific inquiry and scholastic speculation. Thomas Aquinas and Galileo could be seen as representatives of the two different views. "The theory of motion was the keystone of seventeenth century science," as Basil Willey remarks. St. Thomas, following Aristotle, "treats motion as a branch of metaphysics; he is interested in why it happens, not how."[11] Galileo's interest, in contrast, lies precisely in figuring out how motion happens. "Motion might *be* all that the angelic doctor had declared it to be; Galileo nevertheless will drop weights from the top of a tower, and down inclined planes, to see how they behave," says Willey. "He is concerned with quantities, not qualities; and his energy is thus devoted not to framing theories consistent with a rational scheme, but to *measuring* the speed of falling bodies in terms of time and space."[12] While the scholastics tried to rationalize the world according to some theoretical presuppositions or religious beliefs, the scientists investigate things of the world by experiments and empirical evidence.

Since the seventeenth century, we have witnessed the tremendous progress of science and the huge changes it has made to human life and the world. And yet, as Willey argues, "we should cultivate the habit of looking steadily at this intellectual revolution, vigorously checking any propensity to an outrush of uncritical sympathy for either side." Since science has definitely

won most people's "uncritical sympathy" and has become so predominant in the modern world, he continues to argue, "we may be forgiven for leaning a little (as Aristotle advises) towards the opposite side, so as to restore the true mean."[13] In a way that is what we need to do in rethinking modern disciplines and their truth-claims, in reconsidering the book of nature before it was divided into two books categorically differentiated one from the other with no correlations. In so doing, our purpose is not so much to question the value or validity of science as to restore human knowledge as a whole, and to realize the limitations of disciplines in ignoring the correlations of things.

Ultimately, as we have seen at the beginning, justification of truth-claims is a matter of explanation or persuasion, which, as Willey notes, "is a statement which satisfies the demands of a particular time or place."[14] Kosso also argues that explanation is what makes a certain truth-claim persuasive or convincing by satisfying the general expectations of a given time or space. This is perhaps also what Thomas Kuhn means by "paradigm" in science at any given period.[15] In our time, as in the historical past, justification of a scientific claim is first of all based on observations of natural phenomena. "Observations are the supply of particular claims from which to draw inductive generalizations," says Kosso. "Observations present the phenomena of confirmation that shape the theoretical system under the demand of consistency and explanatory relevance. Observation guides theorizing."[16] At the same time, as we have seen earlier, it is also in a theoretical system that particular observations make sense and become relevant and meaningful. "Theories are the source of accountability of observations by drawing out their informational content in a full, descriptive presentation that can function as evidence and make relevant contact with theory, and by structuring the guidelines of reliability of reports from sensation," Kosso continues to say. "Theory guides observing."[17] Observations of particular phenomena as parts and a theoretical system as the whole form a hermeneutic circle within which explanation, interpretation, and justification are produced, always applying the principles of consistency, relevance, and coherence.

Ultimately, the book of nature and truth as the proper reading of that book are all inexhaustible, and science, says Kosso, "like life on the streets, is risky business." Anything claimed to be true beyond the obvious and the superficial is more or less uncertain, and the pursuit of truth in science, like in any other field, is never complete. "No one has finished reading the book of nature, and no one ever will," says Kosso.[18] Indeed, if reading the book of nature is comparable to reading a rich text, then, all readings, explanations, and interpretations are finite, to be complemented, and always subject to further exploration.

This is by no means to deny the progress in scientific knowledge and true understanding of the book of nature scientists have achieved since the seventeenth century. When we consider human knowledge in total, however, we have yet another hermeneutic circle in which scientific propositions form parts of human knowledge as a whole; and in that circle, evidently science as the unchallenged paradigm of truth has become overly weighty; its parts have tipped the balance of the whole in modern times. If science is concerned with matters of quantity in empirical terms, the question of quality in terms of human life as a whole must also be considered. With all the scientific advancement and technological innovations, our world today is not a particularly pretty or good one; and while science is taken to be the paradigm of truth, the world as a whole has neglected the aesthetic and the ethical in terms of value. Looking at the severe damage to the environment, depletion of natural resources, destruction of the ecosystem, the increasingly more sophisticated and more lethal weaponry, not to mention the many conflicts and regional wars, genocides and chaotic political situations, the ever larger gaps between the rich and the poor, the insatiable greed for material gain, and the lack of ethical principles in human behavior not just in the world's less developed countries, but at the very center of world finance and in most developed economies, we may wonder how the world has come to this, and how we may rethink everything, including reconsidering the paradigm of truth in purely scientific and technological terms.

We may want to think outside the scientific box and question whether what we call truth is nothing but a cold calculation of sensory experiences without touching the heart and emotions, and whether the aesthetic and the ethical may also contain truth in ways different to but no less significant than the scientific? "Is there to be no knowledge in art? Does not the experience of art contain a claim to truth which is certainly different from that of science, but just as certainly is not inferior to it?" H. G. Gadamer raised these questions in his argument for the truth value of the aesthetic.[19] "If we want to justify art as a way to truth in its own right," he goes on to argue, "then we must fully realize what truth means here. It is in the human sciences as a whole that an answer to this question must be found."[20] Gadamer's magnum opus, *Truth and Method*, is in a fundamental sense an eloquent defense of humanistic values in our time, a powerful and profound philosophical argument for the truth value of art and the human sciences. Again, this is not to challenge science and its truth-claims, but to take a look at our world as a whole and to point to the humanistic side of human knowledge as important in contributing to the *quality of life* and making the world a better place to live.

What is proposed here in this essay is a much more modest rethinking in going back to some of the ancient, premodern ways of cognition, a reexamination of the "book of nature" as a display of the world as a whole, undifferentiated into various clearly defined phenomena of modern scientific investigations, a "book" with all the signs and symbols correlated and compared, all of which are relevant to human understanding. We need to recognize the importance of making connections in comparison, thinking of the relationships between and among phenomena that may on the surface appear to be distinct and unrelated. And that is in fact what discovery means and not at all alien to scientific thinking.

Thinking in Analogies and Correspondences

It is easy to dismiss whatever is old as out-of-date, primitive, and dispensable, but studies of ancient civilizations reveal ideas that may still have a bearing on the modern world. "Evidently there was no science as we know it today in ancient civilizations," as Geoffrey Lloyd observes. "Yet there were analogous ambitions—in relation to understanding, explaining, predicting a wide variety of phenomena. The task of the historian is to investigate the forms that those ambitions took, what stimulated or inhibited their growth, how the ancient inquirers themselves evaluated their work, how self-conscious they were about its status and goals and about the correct methods to be used."[21] One significant form of making sense of the world in ancient times was to see things and phenomena comparable and analogous in imagination, and express what connected them in concrete images. This is how the "book of nature" was constituted, and this way of understanding and explaining the world may be called analogical thinking in comparisons and correspondences.

When Sima Qian 司馬遷 (145?–90 BCE), the Grand Historian of the Han dynasty in ancient China, justified his writing of history as teaching and exemplifying all the great virtues through the narration of historical events, he quoted Confucius 孔子 as saying "What I would convey through abstract language will not impress as deeply or as clearly as demonstrated in concrete things and events."[22] This at once endows concrete imagery with a transcendental and symbolic meaning beyond its limited particularity and also gives a concrete form to an idea or argument, which would otherwise remain abstract or even obscure, without the compelling force to make a strong impression. By quoting the words of Confucius, Sima Qian tried to legitimize the writing of history not as a simple record of what had happened,

but as narratives that would teach moral virtues in concrete examples and vivid depiction.

In a way, this presented a very different view of history from Aristotle's criticism of history as inferior to poetry because poetry, says Aristotle, "is more philosophical and more elevated than history, since poetry relates more of the universal, while history relates particulars."[23] Sima Qian's point is precisely that history does not just relate to random particulars, but contains meaning of a universal nature. In China, then, historical narrative is closely related to moral teachings and political wisdom, and serves as a manual for proper conduct or, as the title of another famous work of historiography clearly indicates, a *Mirror for Aiding Governance*, which is a mammoth work completed in 1084 under Sima Guang's 司馬光 (1019–1086) editorship and supervision. The connection of history to a larger meaning runs through the entire cultural tradition, and many centuries later, the Qing dynasty scholar Zhang Xuecheng 章學誠 (1738–1801) famously claimed that all six Confucian classics were books of history because "the ancients never talked about principles as separate from things and events."[24] Historical records of particular things and events (事) as parts and the general principles or theory of history (理) as the whole are connected, and understanding history has the same structure as understanding the book of nature in a hermeneutic circle, in which knowledge of history and knowledge of nature in turn are all part of human knowledge as a whole. Historical writing in China thus finds justification in the idea of *exemplum*, sanctioned by Confucius himself, namely the idea that specific historical facts and events provide concrete examples that teach universal moral principles and philosophical wisdom more effectively than abstract theorizing. Of course, knowledge of history is different from knowledge of nature, as the former is based on approximate analogy in terms of example and general theory, while the latter is based on mathematical precision and repeatable verification. In pursuing knowledge in history and science, however, the relationships between historical events or observational evidence as parts and general history or a scientific theory as a whole share a similar hermeneutic structure, and comparison is the basic methodological given in all cases.

Historians are not the only ones who argue for the necessity of conveying ideas of certain abstractness through exemplary events and instances. Zhao Qi 趙岐 (?–201) of the Eastern Han dynasty quoted the same words from Confucius as Sima Qian did to characterize the way Mencius 孟子 formulated his theories about human nature and other concepts through induction, that is, by drawing general conclusions from particular examples. When Mencius claimed that human nature is innately good, he did

not argue from a priori abstract assumptions, but by obtaining that idea analogically from a totally unrelated situation of water coming downward from higher ground. In debating whether human nature is good or bad, Mencius's rival, Gaozi 告子, first made the analogy that human nature is not presupposed to be good or bad, just like water flowing to the east or to the west without a definite direction, depending on the shape of the terrain. Ingeniously taking over the water analogy, Mencius changed the horizontal axis to a vertical one and asked: "It is true that water does not make a distinction between the east or the west, but does it not differentiate between upward or downward? Human nature is as necessarily good as water necessarily comes down. There is no man who is not good, just as there is no water that does not run downward."[25] The comparison of human nature with the nature of water may strike us as somewhat odd, because Mencius never established the logical premise on which water and human nature could be seen as comparable. But Mencius's point here is the necessity or inevitableness of the good in human nature as he understood it; for him, the goodness of human nature was as inevitable as the downward movement of water. In our modern understanding, the question of human nature should be discussed in ethics or moral philosophy, while the flow of water belongs to science or hydraulics. We question the logicality of Mencius's argument, and we don't see the logical connection in his mind between the two phenomena now belonging to two different disciplines. Though Newtonian gravity as a concept was unknown in his time, based on perhaps numerous occasions of observing the flow of water, or we may say of reading the book of nature, Mencius knew that the nature of water is such that it always runs downward.

Mencius argued for the inherent goodness of human nature in other places where the case seemed more plausible and logical, but he always argued on the basis of analogies. When he claimed that all men have an inherently sympathetic nature to the suffering of others, he again set up a hypothetical situation of "a child about to fall into a well." In facing such an emergency, "everyone would feel horrified and compassionate not because one would want to make friends with the child's parents, not because one would want to make a reputation among neighbors and friends, nor because one hated to hear the child crying," says Mencius. "From this we may conclude that he who does not have a heart of compassion is not human."[26] To be human means to have compassion, which can be proven by the almost intuitive reaction to an emergency like saving a drowning child.

It is interesting to note that this specific image of a child about to fall and get drowned in water reappears in moral philosophy of our time, in

what Kwame Anthony Appiah calls the "Singer principle." In a discussion of cosmopolitanism as extending one's moral sentiments to strangers and unknown others, Appiah mentions "a famous analogy previously offered by the philosopher Peter Singer. 'If I am walking past a shallow pond and see a child drowning in it, I ought to wade in and pull the child out,' Singer wrote. 'This will mean getting my clothes muddy, but this is insignificant, while the death of the child would presumably be a very bad thing.'"[27] The similarity between Singer's analogy and that of Mencius is rather intriguing, and one wonders whether Singer had read Mencius in translation. He may or may not have, but the point is that analogical thinking is not just ancient and premodern, but has its use and relevance to philosophical argument in the modern world today. In Mencius, the universality of good human nature is a conclusion drawn from specific instances of taste and other sensory perceptions:

> All palates have the same taste in flavor; all ears have the same preference of sound; and all eyes have the same appreciation of beauty. When it comes to the heart, how can it alone have nothing in common? What is in common in all hearts? It is reason and rightness. The sage has first got what my heart also desires as the commonality; therefore reason and rightness please my heart just as meat pleases my palate.[28]

What is interesting here is again the connection of the concrete and the abstract through an analogy. Just as Mencius tried to illuminate the abstract idea of good human nature by way of the concrete material of flowing water, here he made use of the physical perceptions of taste, sound, and beautiful things as analogous to understanding abstract ideas of "reason and rightness" (理義). These are all examples of establishing correspondences between two different phenomena or situations, and therefore essentially an associative or metaphorical way of thinking.

The word analogy or correspondence is richly suggestive in the context of ancient China. We may think of Chinese cosmology, fully developed in the Han dynasty but with elements already existent in much earlier times, anticipated not only in such Confucian classics as the *Book of Changes*, but also in Taoist books and books of other philosophical schools. Many thinkers shared the idea of correspondences between heaven and man, the movement of stars and heavenly bodies on the one hand and human affairs on the other. Thus an entire system of correlative items was formulated with *dao* 道, *yin* 陰 and *yang* 陽, the four seasons, and the five elements as most basic factors regulating everything in the universe. "Heaven is high and superior and earth

is low and humble," as we read in the *Book of Changes*, "so *qian* 乾 and *kun* 坤 are defined."[29] Now *qian*, the first abstract hexagram, is said to be concretized as heaven, head, father, horse, deep red color, and so forth, while *kun*, the second hexagram, is said to be earth, belly, mother, cow, black color, and so forth. Individually, each of these images does not seem to make much sense, but when put together as a group, then, heaven, head, father, horse, the red color, and so on would suggest the character of *qian* as masculine and dominant, whereas earth, belly, mother, cow, the black color, and so on would suggest the character of *kun* as feminine and subordinate. Each of the images thus partially suggests some quality or essence about the hexagram with which it stands in an analogical relationship. When juxtaposed in pairs such as heaven and earth, head and belly, father and mother, horse and cow, red and black, and so forth, a pattern of intelligibility emerges to indicate the relationship between *qian* and *kun* as *yang* and *yin*, masculine and feminine, hard and soft, high and low, the superior and the inferior, and so forth. Therefore, it is through those concrete images and their correlations that we come to understand the nature of *qian* and *kun*, and it is through the symbolism of those images that we arrive at hexagrams as a system of abstract notions.

The correspondence between heaven and the human world is perhaps the first and foremost analogy. The sages determined, to quote the *Book of Changes* again, "that the way of heaven consists in *yin* and *yang*, the way of the earth consists in softness and hardness, and the way of man consists in benevolence and righteousness. They brought these three powers together and doubled them, and thus the hexagrams in the *Changes* are formed with six lines."[30] The correlations here of heaven, earth, and man as three powers or three origins are expressed in a parallelism typical of all classical Chinese poetry and prose, and indeed we may say that it is analogical thinking that provides the mental foundation for such parallel expressions in literary Chinese. In a famous passage describing the invention of hexagrams, we have a picture of how abstract signs are created out of the traces of concrete things and their patterns, and this idea is also expressed in a typical Chinese parallelism:

> In ancient times when Pao Xi 庖羲 ruled all under heaven, he looked upward to observe the forms in the sky and looked downward to observe the patterns on the earth, and he also observed the pattern of traces left by birds and animals on the ground and the configurations of the earth. By taking hint near at hand from his body and farther away from external things, he then created the hexagrams to

> make the virtue of gods comprehensible and the nature of all things known in signs.[31]

The sage king is the one who understood the correspondence between nature and man, and derived meaning from the visible patterns in nature for the human world. "So the sage was able," as we read in *Guanzi* 管子, "to understand heaven above and the earth below."[32] Analogy in thinking thus produces parallelism in language, and both point to the correlation of the concrete and the abstract, the particular and the general, the imagery and its universal meaning. Thinking in analogies is thus leading from the concrete to the abstract, from the particular to the universal on the basis of comparison.

The concept of heaven 天 as a superhuman and supernatural power appears in many ancient Chinese texts. In the *Analects*, for example, Confucius pointed to heaven as possessing the power to communicate perfectly without the mediation of language. "I will not speak," he told his disciples. His student Zigong 子貢 felt a panic and said, "What do we, the youngsters, have to transmit, if you should give up speaking?" The master replied, "Does heaven ever speak? Yet the four seasons run their course, and a hundred things rise and grow. Does heaven ever speak?"[33] Heaven in this context became the unseen power behind the perfect order of things. On another occasion, because of mistaken identity, Confucius was detained by people at Kuang 匡. Facing such a dangerous situation, he entrusted heaven for protection and famously said, "Since King Wen 文王 passed away, hasn't culture 文 resided here with me? If heaven would let this culture die, I would not be able to hold it; but if heaven would not let this culture die, what can these people of Kuang do to me?"[34] Heaven here held the power to decide the fate not only of individuals, but of cultures, and Confucius was confident that he would survive because "this culture" would.

The concept of heaven appears in ancient texts of other schools as well. In the "Will of Heaven" chapter of the book of *Mozi* 墨子, the ruler is called the "son of heaven": "When the son of heaven does something good, heaven can reward him. When the son of heaven does evil, heaven can punish him."[35] Mozi articulated an ancient idea that heaven had the power to reward or punish the ruler for his merits or evil doings, just like a father could do with his son. The book of *Zhuangzi* 莊子 has a chapter entitled "The Revolution of Heaven," in which we find a similar expression: "Heaven has six dimensions and five constant elements. Following heaven, the king will rule in good order, but going against heaven, the king will bring about disasters."[36] Apparently this was a widely shared idea. The Gongyang 公羊

school of commentaries on the *Spring and Autumn Annals* 春秋 in particular emphasized the idea of the unity of heaven and man, which was then further developed during the Western Han dynasty in the last two centuries BCE.

The most well-known articulation of the idea of the unity of heaven and man in ancient China was put forward by the Han dynasty Confucian literati-official Dong Zhongshu 董仲舒 (179–104 BCE). In an important book attributed to him, *Exuberant Dews of the Spring and Autumn* 春秋繁露, Dong clearly built up a social hierarchy in analogy to family relationships:

> The son of heaven takes orders from heaven; the nobles take orders from the son of heaven; the son takes orders from the father; male and female subordinates take orders from their master; the wife takes orders from her husband. All who take orders revere their superior as heaven; so it can be said that all take orders from heaven.[37]

Here a system of hierarchical relationships is set up between heaven and the ruler, and repeated down through every human relationship in the family and in society at large. Thus the system constituted a cosmological and political theory to legitimize the rule of the "son of heaven" and the stability of a social order. Dong proposed an intriguing analogy between heaven and man when he described both in concrete, bodily terms: "Heaven uses the numbers of a whole year in making the human body," he says, "so there are three hundred and sixty-six small joints to correspond to the number of days, and twelve big joints to correspond to the number of months. Inside the human body, there are five organs to correspond to the number of five elements. On the outside, there are four limbs to correspond to the number of four seasons." The opening and closing of eyes correspond to day and night; breathing in and out correspond to the blowing of air and wind; sorrow, joy, and other kinds of mood correspond to the changing condition of the seasons. In this picture, man and heaven are systematically compared and correlated with one another; if heaven assumes the shape of an anthropomorphic god, man is also turned into a miniature universe. "The human body," says Dong Zhongshu, "is like that of heaven."[38] In such analogical thinking, nature and the human body are correlated to make what belongs to the natural and what falls under the rubric of the human integrate into a holistic outlook on the human world as well as on heaven and the earth.

Because of such perfect correspondences, every concrete phenomenon can be read and understood as a sign of some abstract idea or general principle. As Dong argues, "one can display the visible to reveal the invisible, and take the countable to reveal the uncountable. That is to say, the way to

understand should be to look at the correspondence between categories, just like looking at what is visible, and examining the matching of numbers."[39] That may explain the importance of observing the movement of heavenly bodies, recording natural calamities and any unusual things or events as signs and omens. "All calamities have their roots," says Dong, "in the defects of a state." Natural calamities thus become heaven's warnings to man, and those who rule "must endeavor to see the will of heaven through calamities."[40] In a way, Dong's argument was very close to the European idea of the "book of nature," in which natural phenomena all present themselves as meaningful signs to be read, understood, and interpreted for their bearing on the human world.

This Chinese idea of the correspondence between heaven and man almost irresistibly calls for comparison with the Western concept of the body politic, the correspondence between macrocosm and microcosm. The idea that heaven sent warnings to man was in fact a commonplace in the ancient world. "God invented and gave us sight to the end that we might behold the courses of intelligence in the heaven, and apply them to the courses of our own intelligence which are akin to them," says Plato.[41] Out of such a belief emerged astrology that read the movement of heavenly bodies for divination of the will of heaven. Not just in ancient China, but in ancient Mesopotamia and Greece, as Geoffrey Lloyd observes, there was the common belief that "the heavens sent messages that bore on human destinies, not determining their fate, but rather sent as warnings that the wise should take into account."[42] That is exactly what Dong Zhongshu said about natural calamities. "When the defects of the state first start," he argues, "heaven would send calamities as warnings. If such warnings do not make the state change its ways, strange things would appear to strike fear in men's hearts, but if men are not frightened and do not know fear, catastrophes would come as punishment."[43]

The striking similarities here lead us to the realization that analogical thinking was found almost universally in the ancient world, not just in China, but also in the West from antiquity, during medieval times, up to and even beyond the eighteenth century. Such a holistic view of the natural and the human world as a world of order, hierarchy, and correspondences has been discussed in such classic works as Arthur Lovejoy's *The Great Chain of Being* and E. M. W. Tillyard's *The Elizabethan World Picture*. Of the Elizabethan worldview, analogy or correspondence constitutes a crucial part. Nature is the macrocosm, and man the microcosm. "Man is called a little world," as Tillyard states, "because he possesses all the faculties of the universe."[44] He goes on to say that "man's very anatomy corresponded with the physical ordering of the universe," that there was a "physical correspondence between microcosm and macrocosm."[45] That certainly reminds us of Dong Zhongshu's

striking image of the human body as consisting of 366 small joints, 12 big joints, and 4 limbs in correspondence with the number of days, months, and seasons in a year. There are numerous comparable details in the works of the East and the West, which offer rich opportunities for rethinking the relationships between nature and the human world, and the ways in which we understand the world and acquire knowledge.

If Chinese historical writing, as we have seen at the beginning, was thought to provide teachings of moral virtue and political wisdom, Western historiography during the Renaissance was also thought to contain insights for moral and political teaching. Giovanni Boccaccio's (1313–1375) *De Casibus Virorum Illustrium* (*Examples of Famous Men*) started a tradition of historical writing with a strong moral intention. A multi-authored work in English following that *De Casibus* tradition, *A Mirror for Magistrates*, was first published in 1559 and reprinted numerous times with additional materials till the early seventeenth century. The title of this book certainly recalls Sima Guang's historical work in eleventh-century China, for both used history to teach moral principles and political wisdom, and to show the unavoidable consequences of one's conduct and behavior as though through a metaphorical "mirror." Niccolò Machiavelli (1469–1527) believed that the study of antiquity held lessons for the modern world and that Roman history in particular was exemplary, since the Roman Empire was the most successful polity in the ancient world. His view of history as exemplary and didactic can be seen clearly in his *Discorsi sopra la prima deca di Tito Livio* (*Discourses on the First Decade of Livy*, 1513–1519). All these are examples of historical thinking in the West which is comparable with the way ancient Chinese historians thought of history and its use.

Ancient records of the observation of heavenly bodies and the interpretation and prediction of their movements are later considered to be scientific as astronomy, but the idea of the correspondences between heavenly bodies and human affairs is discredited as superstitious astrology. In the modern world with scientific truth as the unquestionable paradigm, it is too easy to ignore the possible insights and value of ancient and premodern ways of understanding, and therefore to miss the possibility of gaining those insights and that value. The holistic worldview embodied in analogical thinking, which relates everything to everything else in a complicated system of correspondences, may be helpful precisely because of its difference from our conventional "scientific" way of thinking about the world. One interesting example is the Chinese Taoist philosopher Zhuangzi's allegory of the artificialness of differentiating all things by human cognition. It is a well-known story about Hundun 渾沌, the mythological emperor of the center, whose

name is often mistranslated as Chaos, but the point of Zhuangzi's story is not about the genesis of the world from chaos to order, but about the damage human effort may do to all things in their natural condition of pristine and undifferentiated existence:

> The emperor of the southern sea was Shu 倏, and that of the northern sea was Hu 忽, while the emperor at the center was Hundun. Shu and Hu often met in Hundun's territories and were well treated by him. Thus Shu and Hu wanted to repay Hundun's kindness, and they said: "all human beings have seven orifices for seeing, listening, eating, and breathing, but he alone has none, we should try to make them for him." So they dug a hole in him each day, and by the seventh day Hundun died.[46]

Hundun was apparently a round thing with no holes or orifices, just like the round wontons 餛飩 that come in a bowl of soup you can get in a typical Cantonese restaurant. In fact, the two words in Chinese are homophones. The point of Zhuangzi's story about Huntun is to emphasize the core idea of Taoist naturalism, that is, the idea that things should be left in their natural condition, for human action is often interference that does more harm than good. This gives expression to a holistic view of the world as integrated, internally connected as a harmonious whole, of which any artificial differentiation or cutting up into various special areas or divisions may lead to undesirable or even disastrous consequences.

This idea is surely ancient and definitely premodern, but it inspired the physicist and Nobel laureate Hideki Yukawa 湯川秀樹 in his work on elementary particles. Yukawa had been thinking about elementary particles for many years, and at the time there were more than thirty different types of such particles already discovered. He thought of that Zhuangzi passage because he was considering the possibility of an even more basic form of matter that "has no fixed form and corresponds to none of the elementary particles we know at present. It may be something that can be differentiated into all kinds of particles but has not yet done so." It is, Yukawa continues to say, "what Werner Karl Heisenberg called '*Urmaterie* (primordial matter).'"[47] From Zhuangzi to Yukawa and Heisenberg, there are a huge distance and a big difference, but there are also surprising and uncanny affinities. Hundun and meson, Zhuangzi and modern particle physics, these are rather improbable connections, but from these connections we may see that we should not too quickly discard old, premodern ideas or ways of thinking simply because they are old and premodern. By

revisiting some of the old ideas, of which the value has not been sufficiently recognized in modern scholarship, we may find them helpful in rethinking the disciplinary compartmentalization of knowledge, and may perhaps unexpectedly find possibilities of dialogues between different disciplines in broad, wide-ranging comparative studies.

Comparative literature always tries to study literature beyond the boundaries of national traditions or different forms of expression or disciplines. Though with literature as the focus, comparative literature is not limited just to the reading of literary texts, but tries to read literature in relation to its larger contexts in history, culture, philosophy, religion, social and political background, and any other relevant dimensions of human life. With comparison as its *modus operandi*, comparative literature is explicit about its methodology and self-conscious of the problems of differences and similarities of all kinds, including those between sciences and the humanities. In a world where differences are overemphasized and specialization leads to the isolation of disciplines and pockets of knowledge, the open and expansive horizon of comparative literature may perhaps offer us the best help in our effort to rethink the possibility of interdisciplinary correlations, the connectedness of different aspects of human knowledge as a whole, and the ways in which we may improve the quality of life by integrating the progress of science and technology with the humanistic concerns of moral and political issues in the reality of life that we must face in our world today.

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